

**CALIFORNIA ENVIRONMENTAL PROTECTION
AGENCY
REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**



**NATURAL ENVIRONMENT STUDY
OF THE
SEDIMENTATION/SILTATION
TOTAL MAXIMUM DAILY LOAD
FOR THE ALAMO RIVER**

ATTACHMENT 3A

September 9, 2002

**Prepared by:
Regional Board Staff
Watershed Protection Division**

ATTACHMENT 3A NATURAL ENVIRONMENT STUDY

The purpose of the Natural Environment Study (NES) is to provide certain biological studies and information necessary for environmental documents to satisfy legal requirements of the various State and Federal statutes. Generally, the NES includes documentation of the biological resources in the project area and an assessment of the impacts of the project alternatives on those resources.

Project Description

The proposed project consists of an amendment to the Water Quality Control Basin Plan for the Colorado River Basin Region (hereafter "Basin Plan") that will establish the Alamo River Sedimentation/Siltation Total Maximum Daily Load (TMDL). A TMDL is the maximum amount of a pollutant that a body of water can receive while it still meets water quality standards. The Basin Plan designates beneficial uses of waterbodies within the Region, establishes water quality objectives for the protection of these beneficial uses, and outlines a plan of implementation for maintaining and enhancing water quality. The existing Basin Plan includes sediment and turbidity narrative water quality objectives to protect beneficial uses for the Alamo River. The Alamo River is the main tributary of the Salton Sea, California's largest inland surface water body. The river has its headwaters several miles south of the International Boundary between the United States and Mexico, and travels roughly 60 river miles through Imperial County before it empties into the southeast corner of the Salton Sea, just east of the unincorporated community of Niland. Figures 1 and 2 show the Alamo River delta at the Salton Sea.

Excess delivery of suspended sediment to the Alamo River from agricultural drains owned and operated by the Imperial Irrigation District (IID), and from farmland in the Imperial Valley, exceeds the Basin Plan's water quality objectives for sediment and turbidity. This excess delivery of suspended sediments has resulted in degraded water quality conditions that impair the following designated beneficial uses: warm freshwater habitat; wildlife habitat; preservation of threatened, rare, and endangered species habitat; contact- and non-contact recreation; freshwater replenishment. The main sources of suspended sediment in the drains are agricultural tailwater and to a lesser extent dredging of the drains. Tailwater is irrigation water that is applied to fields, does not percolate into the soil, exits the lower end of the field, and typically flows into an IID drain tributary to the river. The proposed Basin Plan Amendment:

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2. Includes the elements of the Regional Nonpoint Source Control Program.
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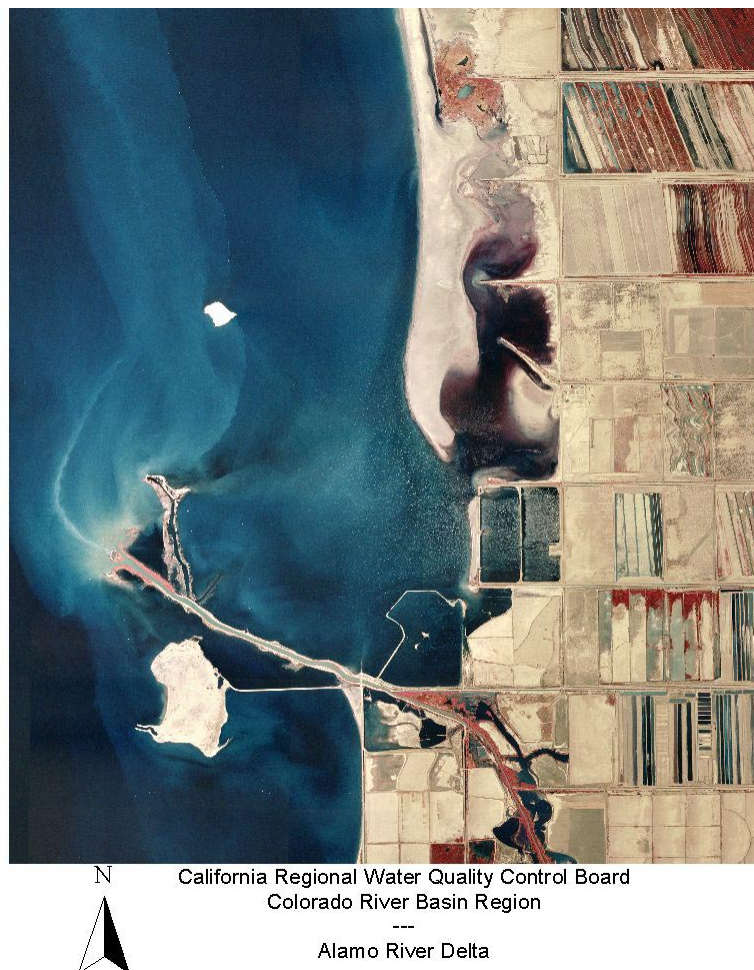


Figure 1. Alamo River Delta, Aerial View

Part 130.2 of Title 40 of the Code of Federal Regulations defines BMPs as "methods, measures, or practices selected by an agency to meet its nonpoint source control needs. BMPs include but are not limited to structural and nonstructural controls and operation and maintenance procedures. BMPs can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters."



Figure 2. Alamo River Delta

Study Methodology

Literature review: Research was done on the habitat, vegetation, and species in the Alamo River and Salton Sea delta area. The distribution of plant communities was mapped based on survey information and recent aerial photographs. Sensitive species /habitats looked for:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
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California brown pelican	<i>Pelecanus occidentalis californicus</i>	SES/FE
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	SES/FE
California least tern	<i>Sterna antillarum browni</i>	SES/FE
Least Bell's vireo	<i>Vireo bellii pusillus</i>	SES/FE
Greater sandhill crane	<i>Grus canadensis tabida</i>	FT
Yuma clapper rail	<i>Rallus longirostris yumanesis</i>	STS-FP/FE
Tri-colored blackbird	<i>Agelaius tricolor</i>	SSSC
Burrowing owl	<i>Athene cunicularia</i>	SSSC
Least bittern	<i>Ixobrychus exilis</i>	FSSC
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California black rail	<i>Laterallus jamaicensis coturniculus</i>	STS-FP
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Short-eared owl	<i>Asio flammeus</i>	SSSC
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Southern Willow Scrub		

Legend:

FSSC= Federal Species of Special Concern

FTS=Federal threatened species

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Environmental Setting

The affected environment in the Alamo River watershed and the Salton Sea includes components of terrestrial and aquatic communities. These communities are made up of plant communities, some of which are sensitive habitat, and wildlife, including special-status wildlife species. The diversity and abundance of wildlife and available habitat are intricately associated. Environmental impacts to habitat will have direct impacts on the wildlife dependent upon that particular habitat. Habitats potentially affected include the sensitive habitat Southern willow scrub, non-native Tamarisk scrub, cismontane alkali marsh, freshwater marsh, mudflats, and open water.

Southern willow scrub communities are characterized by dense riparian thickets dominated by various *Salix* species that are associated with scattered emergent *Populus fremontii* and *Platanus racemosa* (CDFG, 1986). Southern willow scrub was once more widespread, but is now reduced due to urbanization, flood control, and alterations to stream drainages.

Tamarisk scrub consists mainly of introduced *Tamarix* species. These non-native shrubs replace native vegetation and reduce water available for wildlife.

Cismontane alkali marshes are associated with the Salton Sea delta and the Salton Sea. These marshes are low-lying areas characterized by standing water or saturated soil subject to low inputs of fresh water and high evaporation rates. This salty, alkaline environment supports several varieties of plants, including a thick cover of salt grass (*Distichlis spicata*) and emergent aquatic vegetation, such as cattails (*Typha* spp.) and alkali bulrush (*Scirpus robustus*) (Tetra Tech, Inc., 1999).

Freshwater marsh occurs mainly along unlined agricultural canals draining to the lake. These marshes are dominated by non-native species such as common reed (*Phragmites australis*), cattail (*Typha* spp.), golden dock (*Rumex maritimus*), and rabbitfoot grass (*Polypogon monspeliensis*). (Tetra Tech, Inc., 1999)

Open water habitat occurs in the Alamo River and the Salton Sea. The open water habitat is the portion that is always flooded and may support submerged or emergent vegetation. Algae make

up the primary plant community in the Salton Sea. Mudflats are free of vegetation and are periodically flooded and then exposed.



Figure 3. Mudflats of the Alamo River Delta

Biological Resources in the Project Area

Sensitive Species

Several sensitive species are found in the Alamo River and Salton Sea Delta Area. The Yuma Clapper rail and bittern are known to occupy freshwater marsh areas in the Alamo River area and in the Salton Sea Delta area. The proposed TMDL is estimated to result in a greater than 50 percent reduction in siltation/sedimentation to the Alamo River, which would result in the same reduction in deposition to the Salton Sea delta. Current IID dredging operations remove an average of 24,000 tons of sediment per year from the Alamo River drainage from Garst Road to the Salton Sea, the area we describe as the Salton Sea delta. This current level of dredging coupled with the silt reduction resulting from this project will result in the loss of valuable habitat utilized by sensitive species in the Salton Sea delta area.

Species	Scientific Name	Habitat	Presence-Seasonal	Potential of Being Impacted By Project
Yuma Clapper Rail	<i>Rallus longirostris yumanesis</i>	Wetland	S	L
Brown Pelican	<i>Pelecanus occidentalis</i>	Water, Beach	S	L
Desert Pupfish	<i>Cyprinodon macularius</i>	Water	R	N
Burrowing Owl	<i>Athene</i>	Ag	R	L

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	<i>cunicularia</i>			
Greater Sandhill Crane	<i>Grus canadensis tabida</i>	Ag	W	N
California Black Rail	<i>Laterallus jamaicensis coturniculus</i>	Wetland, Beach	R	L
California Least tern	<i>Sterna antillarum browni</i>	Water, Beach	S	N
Reddish egret	<i>Egretta rufescens</i>	Water	S	N
Southwestern willow flycatcher	<i>Empidonax trailii extimus</i>	Riparian	S	N
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Riparian	S	N
Tri-colored blackbird	<i>Agelaius tricolor</i>	Wetland, Riparian	S	L
Least bittern	<i>Ixobrychus exilis</i>	Wetland/Ag	S	L
Loggerhead shrike	<i>Lanius ludovicianus</i>	Ag	S	N
Yellow warbler	<i>Dendroica petechia</i>	Riparian	S	N
Van Rossem's gull-billed tern	<i>Sterna nilotica vanrossemi</i>	Water	S	N
Caspian tern	<i>Sterna caspia</i>	Water	S	N
Black skimmer	<i>Rynchops niger</i>	Water	S	N
Cooper's hawk	<i>Accipter cooperti</i>	Riparian	S	N
Sharp-shinned hawk	<i>Accipter striatus</i>	Riparian	S	N
Short-eared owl	<i>Asio flammeus</i>	Ag	S	N
Long-eared owl	<i>Asio otus</i>	Riparian	S	N

Legend:

Ag=Agriculture

Beach=mudflats/beach

Riparian=Willow scrub/ Tamarisk scrub

Water=Open water areas

Wetland=Emergent wetlands, marsh, alkali marsh

S=Spring/Summer

W=Winter

R=Resident

L=Low probability of being affected by project

N=No probability of being affected by project

Natural Communities

The primary habitat type is Tamarisk scrub and freshwater marsh. Habitat disturbance due to frequent dredging has resulted in the limited distribution of native vegetation throughout the Alamo River and Salton Sea delta area. Southern willow scrub and wetlands (freshwater marsh, alkali marsh, etc.) sensitive habitats, may be negatively impacted by reductions in deposition at the delta and removal of sediment by continued dredging activities.

Special Status Plant Species

No special status plant species were found within the project limits.

Plant List

Common Name	Scientific Name	Status
Chamise	<i>Adenostoma fasciculatum</i>	
Western ragweed	<i>Ambrosia psilostachya</i>	
Fiddleneck	<i>Amsinckia intermedia</i>	
Wild celery	<i>Apiastrum angustifolium</i>	
Mugwort	<i>Artemisa douglasiana</i>	
Giant Reed	<i>Arundo donax</i>	
Quail bush	<i>Atriplex canescens</i>	
Slender wild oat	<i>Avena barbata</i>	
Common wild oat	<i>Avena fatua</i>	
Black mustard	<i>Brassica nigra</i>	
Ripgut grass	<i>Bromus diandrus</i>	
Foxtail chess	<i>Bromus madritensis</i>	
Brome	<i>Bromus rubens</i>	
Sedge	<i>Carex barbarae</i>	
Yellow-star thistle	<i>Centaurea solstitialis</i>	
Bull thistle	<i>Cirsium vulgare</i>	
Poison Hemlock	<i>Conium maculatum</i>	
Common horseweed	<i>Conyza canadensis</i>	
Cardoon	<i>Cynara cardunculus</i>	
Jimsonweed	<i>Datura wrightii</i>	
Salt grass	<i>Distichlis spicata</i>	
Doveweed	<i>Eremocarpus setigerus</i>	
Long-beaked filaree	<i>Erodium botrys</i>	
Red-stemmed filaree	<i>Erodium cicutarium</i>	
Western sunflower	<i>Helianthus annuus</i>	

Common Name	Scientific Name	Status
Cow Parsnip	<i>Heracleum sphondylium</i>	
Telegraph weed	<i>Heterotheca grandiflora</i>	
Prickly lettuce	<i>Lactuca serriola</i>	
Alfalfa	<i>Medicago sativa</i>	
Common reed	<i>Phragmites australis</i>	
Bristly ox-tongue	<i>Picris echinoides</i>	
	<i>Platanus racemosa</i>	
Arrowweed	<i>Pluchea sericea</i>	
Cottonwood	<i>Populus fremontii</i>	
Rabbitfoot grass	<i>Polypogon monspeliensis</i>	
Wild radish	<i>Raphanus sativus</i>	
Castor bean	<i>Ricinus communis</i>	
Golden dock	<i>Rumex maritimus</i>	
Willow	<i>Salix hindsiana</i>	
Russian thistle	<i>Salsola tragus</i>	
Brazilian pepper tree	<i>Schinus terebenthifolius</i>	
Alkali bulrush	<i>Scirpus robustus</i>	
Tamarisk	<i>Tamarix</i> spp.	
Poison oak	<i>Toxicodendron diversilobum</i>	
Cattail	<i>Typha latifolia</i>	
Stinging Nettle	<i>Urtica holosericea</i>	

In Depth Studies for Special Laws

The Federal Endangered Species Act of 1973 (16 U.S.C. 1531-1543) provides for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 7 of the act requires Federal agencies, in consultation with and with the assistance of the Secretary of the Interior, to insure that actions they authorize, fund or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The California Endangered Species Act (Fish and Game Code 2080) requires state lead agencies to consult with the Department of Fish and Game during the CEQA process to avoid jeopardy to threatened or endangered species.

Mitigation Measures

At present, IID dredging operations that directly affect the Salton Sea delta occur within the drainage of the Alamo River from Garst Road to the Salton Sea. In this one-mile distance, dredging is performed about every two years and removes approximately two feet of sediment from bank to bank (Steve Charleton, 2000). The reduction of silt resulting from this proposed

TMDL, coupled with the current IID dredging activities in the Alamo River Watershed, could result in a significant decrease in the deposition of silt/sediment near the Salton Sea delta. This loss of silt/sediment could result in loss of habitat utilized by wildlife, including state and federally listed threatened and endangered species and in loss of sensitive habitat. Reduction of dredging, as well as timing of dredging, in the delta region would minimize impacts on the species and habitat of concern. Also, it would mitigate on-going violations of the 5 mg/L dissolved oxygen (DO) WQO for the river. Dredging along the Salton Sea delta should be minimized to reduce the likelihood of indirect impacts to Yuma clapper rail, California black rail, and sensitive habitat. Out of nesting season dredging would minimize impacts to burrowing owls and least bittern.

In order to reduce the effects of implementing this silt reduction TMDL to a less than significant impact on biological resources, staff is recommending that the Regional Board require the IID to submit a technical report, pursuant to Section 13267 of the California Water Code, describing the measures it proposes to take (e.g. decrease dredging), along with a monitoring plan, to ensure that its overall dredging operations in the Alamo River Watershed do not result in the loss of habitat and indirect effects on sensitive species as a result of implementation of this TMDL and mitigate DO violations.

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Southern willow scrub communities are characterized by dense riparian thickets dominated by various *Salix* species that are associated with scattered emergent *Populus fremontii* and *Platanus racemosa* (CDFG, 1986). Southern willow scrub was once more widespread, but is now reduced due to urbanization, flood control, and alterations to stream drainages.

Tamarisk scrub consists mainly of introduced *Tamarix* species. These non-native shrubs replace native vegetation and reduce water available for wildlife.

Cismontane alkali marshes are associated with the Salton Sea delta and the Salton Sea. These marshes are low-lying areas characterized by standing water or saturated soil subject to low inputs of fresh water and high evaporation rates. This salty, alkaline environment supports several varieties of plants, including a thick cover of salt grass (*Distichlis spicata*) and emergent aquatic vegetation, such as cattails (*Typha* spp.) and alkali bulrush (*Scirpus robustus*) (Tetra Tech, Inc., 1999).

Freshwater marsh occurs mainly along unlined agricultural canals draining to the lake. These marshes are dominated by non-native species such as common reed (*Phragmites australis*), cattail (*Typha* spp.), golden dock (*Rumex maritimus*), and rabbitfoot grass (*Polypogon monspeliensis*). (Tetra Tech, Inc., 1999)

Open water habitat occurs in the Alamo River and the Salton Sea. The open water habitat is the portion that is always flooded and may support submerged or emergent vegetation. Algae make

up the primary plant community in the Salton Sea. Mudflats are free of vegetation and are periodically flooded and then exposed.



Figure 3. Mudflats of the Alamo River Delta

Biological Resources in the Project Area

Sensitive Species

Several sensitive species are found in the Alamo River and Salton Sea Delta Area. The Yuma Clapper rail and bittern are known to occupy freshwater marsh areas in the Alamo River area and in the Salton Sea Delta area. The proposed TMDL is estimated to result in a greater than 50 percent reduction in siltation/sedimentation to the Alamo River, which would result in the same reduction in deposition to the Salton Sea delta. Current IID dredging operations remove an average of 24,000 tons of sediment per year from the Alamo River drainage from Garst Road to the Salton Sea, the area we describe as the Salton Sea delta. This current level of dredging coupled with the silt reduction resulting from this project will result in the loss of valuable habitat utilized by sensitive species in the Salton Sea delta area.

Species	Scientific Name	Habitat	Presence-Seasonal	Potential of Being Impacted By Project
Yuma Clapper Rail	<i>Rallus longirostris yumanesis</i>	Wetland	S	L
Brown Pelican	<i>Pelecanus occidentalis</i>	Water, Beach	S	L
Desert Pupfish	<i>Cyprinodon macularius</i>	Water	R	N
Burrowing Owl	<i>Athene</i>	Ag	R	L

Species	Scientific Name	Habitat	Presence-Seasonal	Potential of Being Impacted By Project
	<i>cunicularia</i>			
Greater Sandhill Crane	<i>Grus canadensis tabida</i>	Ag	W	N
California Black Rail	<i>Laterallus jamaicensis coturniculus</i>	Wetland, Beach	R	L
California Least tern	<i>Sterna antillarum browni</i>	Water, Beach	S	N
Reddish egret	<i>Egretta rufescens</i>	Water	S	N
Southwestern willow flycatcher	<i>Empidonax trailii extimus</i>	Riparian	S	N
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Riparian	S	N
Tri-colored blackbird	<i>Agelaius tricolor</i>	Wetland, Riparian	S	L
Least bittern	<i>Ixobrychus exilis</i>	Wetland/Ag	S	L
Loggerhead shrike	<i>Lanius ludovicianus</i>	Ag	S	N
Yellow warbler	<i>Dendroica petechia</i>	Riparian	S	N
Van Rossem's gull-billed tern	<i>Sterna nilotica vanrossemi</i>	Water	S	N
Caspian tern	<i>Sterna caspia</i>	Water	S	N
Black skimmer	<i>Rynchops niger</i>	Water	S	N
Cooper's hawk	<i>Accipiter cooperi</i>	Riparian	S	N
Sharp-shinned hawk	<i>Accipiter striatus</i>	Riparian	S	N
Short-eared owl	<i>Asio flammeus</i>	Ag	S	N
Long-eared owl	<i>Asio otus</i>	Riparian	S	N

Legend:

Ag=Agriculture

Beach=mudflats/beach

Riparian=Willow scrub/ Tamarisk scrub

Water=Open water areas

Wetland=Emergent wetlands, marsh, alkali marsh

S=Spring/Summer

W=Winter

R=Resident

L=Low probability of being affected by project

N=No probability of being affected by project

Natural Communities

The primary habitat type is Tamarisk scrub and freshwater marsh. Habitat disturbance due to frequent dredging has resulted in the limited distribution of native vegetation throughout the Alamo River and Salton Sea delta area. Southern willow scrub and wetlands (freshwater marsh, alkali marsh, etc.) sensitive habitats, may be negatively impacted by reductions in deposition at the delta and removal of sediment by continued dredging activities.

Special Status Plant Species

No special status plant species were found within the project limits.

Plant List

Common Name	Scientific Name	Status
Chamise	<i>Adenostoma fasciculatum</i>	
Western ragweed	<i>Ambrosia psilostachya</i>	
Fiddleneck	<i>Amsinckia intermedia</i>	
Wild celery	<i>Apiastrum angustifolium</i>	
Mugwort	<i>Artemisa douglasiana</i>	
Giant Reed	<i>Arundo donax</i>	
Quail bush	<i>Atriplex canescens</i>	
Slender wild oat	<i>Avena barbata</i>	
Common wild oat	<i>Avena fatua</i>	
Black mustard	<i>Brassica nigra</i>	
Ripgut grass	<i>Bromus diandrus</i>	
Foxtail chess	<i>Bromus madritensis</i>	
Brome	<i>Bromus rubens</i>	
Sedge	<i>Carex barbarae</i>	
Yellow-star thistle	<i>Centaurea solstitialis</i>	
Bull thistle	<i>Cirsium vulgare</i>	
Poison Hemlock	<i>Conium maculatum</i>	
Common horseweed	<i>Conyza canadensis</i>	
Cardoon	<i>Cynara cardunculus</i>	
Jimsonweed	<i>Datura wrightii</i>	
Salt grass	<i>Distichlis spicata</i>	
Doveweed	<i>Eremocarpus setigerus</i>	
Long-beaked filaree	<i>Erodium botrys</i>	
Red-stemmed filaree	<i>Erodium cicutarium</i>	
Western sunflower	<i>Helianthus annuus</i>	

Common Name	Scientific Name	Status
Cow Parsnip	<i>Heracleum sphondylium</i>	
Telegraph weed	<i>Heterotheca grandiflora</i>	
Prickly lettuce	<i>Lactuca serriola</i>	
Alfalfa	<i>Medicago sativa</i>	
Common reed	<i>Phragmites australis</i>	
Bristly ox-tongue	<i>Picris echinoides</i>	
	<i>Platanus racemosa</i>	
Arrowweed	<i>Pluchea sericea</i>	
Cottonwood	<i>Populus fremontii</i>	
Rabbitfoot grass	<i>Polypogon monspeliensis</i>	
Wild radish	<i>Raphanus sativus</i>	
Castor bean	<i>Ricinus communis</i>	
Golden dock	<i>Rumex maritimus</i>	
Willow	<i>Salix hindsiana</i>	
Russian thistle	<i>Salsola tragus</i>	
Brazilian pepper tree	<i>Schinus terebenthifolius</i>	
Alkali bulrush	<i>Scirpus robustus</i>	
Tamarisk	<i>Tamarix</i> spp.	
Poison oak	<i>Toxicodendron diversilobum</i>	
Cattail	<i>Typha latifolia</i>	
Stinging Nettle	<i>Urtica holosericea</i>	

In Depth Studies for Special Laws

The Federal Endangered Species Act of 1973 (16 U.S.C. 1531-1543) provides for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 7 of the act requires Federal agencies, in consultation with and with the assistance of the Secretary of the Interior, to insure that actions they authorize, fund or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The California Endangered Species Act (Fish and Game Code 2080) requires state lead agencies to consult with the Department of Fish and Game during the CEQA process to avoid jeopardy to threatened or endangered species.

Mitigation Measures

At present, IID dredging operations that directly affect the Salton Sea delta occur within the drainage of the Alamo River from Garst Road to the Salton Sea. In this one-mile distance, dredging is performed about every two years and removes approximately two feet of sediment from bank to bank (Steve Charleton, 2000). The reduction of silt resulting from this proposed

TMDL, coupled with the current IID dredging activities in the Alamo River Watershed, could result in a significant decrease in the deposition of silt/sediment near the Salton Sea delta. This loss of silt/sediment could result in loss of habitat utilized by wildlife, including state and federally listed threatened and endangered species and in loss of sensitive habitat. Reduction of dredging, as well as timing of dredging, in the delta region would minimize impacts on the species and habitat of concern. Also, it would mitigate on-going violations of the 5 mg/L dissolved oxygen (DO) WQO for the river. Dredging along the Salton Sea delta should be minimized to reduce the likelihood of indirect impacts to Yuma clapper rail, California black rail, and sensitive habitat. Out of nesting season dredging would minimize impacts to burrowing owls and least bittern.

In order to reduce the effects of implementing this silt reduction TMDL to a less than significant impact on biological resources, staff is recommending that the Regional Board require the IID to submit a technical report, pursuant to Section 13267 of the California Water Code, describing the measures it proposes to take (e.g. decrease dredging), along with a monitoring plan, to ensure that its overall dredging operations in the Alamo River Watershed do not result in the loss of habitat and indirect effects on sensitive species as a result of implementation of this TMDL and mitigate DO violations.

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